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Siemens Corporation  
Intellectual Property Department  
170 Wood Avenue South  
Iselin, NJ 08830

EXAMINER
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RAMIREZ, JOHN FERNANDO

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3737

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.



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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/646,222  
Filing Date: August 22, 2003  
Appellant(s): OLIVER ET AL.

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Jenny G. Ko  
Siemens Corporation  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed May 16, 2007 appealing from the Office actions mailed on September 12, 2006 and February 28, 2007.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is substantially correct. The changes are as follows:

**NEW GROUND(S) OF REJECTION**

**Note:** These new grounds of rejection have been made in view of the amendment that was entered via the advisory action mailed 2/28/07.

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Claims 1, 4 and 6-11 are rejected under 35 USC U.S.C. 103(a) as being unpatentable over Horner et al (US4528652) in view of Trzaskos (US4382201).

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Horner et al in view of Trzaskos, as applied to claim 1 above, and further in view of Saito et al (US4571520).

Claim 12 is rejected under 35 USC U.S.C. 103(a) as being unpatentable over Horner et al, in view of Trzaskos, as applied to claim 1, and further in view of McElroy et al. (US3794866).

#### **(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

#### **(8) Evidence Relied Upon**

4,528,652	Horner et al.	07-1985
4,382,201	Trzaskos	05-1983
3,794,866	McElroy et al.	02-1974
4,571,520	Saito et al.	02-1986

## **(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 13-14 and 16 are rejected under 35 USC U.S.C. 102(b) as being anticipated by Horner et al (US4528652) which teach an ultrasound transducer including a backing comprising a physical mixture of lead oxide and/or microspheres in combination with silicone rubber brought into contact but unbonded by gas evacuation of residual air, and including 1:1 mix ratios (see table in column 3). Since the backing fabrication is stated to be an alternative to adhesive materials and there is no stated indication that the mixture of particles into rubber results in any form of bonding, the disclosure effectively embraces an unbonded particle design (see col. 3, lines 3-55).

Furthermore, since the physical mixture of the backing materials are incompatible or (unbonded), the mix materials would inherently allow movement of particles between the unbonded matrix materials creating friction for attenuating acoustic energy.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 4 and 6-11 are rejected under 35 USC U.S.C. 103(a) as being unpatentable over Horner et al (US4528652) in view of Trzaskos (US4382201).

Horner et al teach an ultrasound transducer including a backing comprising a physical mixture of lead oxide and/or microspheres in combination with silicone rubber brought into contact but unbonded (col. 1, lines 43-53; col. 3, lines 3-55), and including 1:1 mix ratios (see table). Since the backing fabrication is stated to be an alternative to adhesive materials and there is no stated indication that the mixture of particles into rubber results in any form of bonding, the disclosure effectively embraces an unbonded particle design. Horner et al do not specifically disclose that the particles are less than

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20 microns. However, in the same field of endeavor, Trzaskos teaches in col. 1 lines 35-51 the use of a backing block comprising a mixture of small particles that are less than 10 microns in diameter.

Based on the above observations, for a person of ordinary skill in the art, modifying the device of Horner et al with a mixture of small particle size materials that are less than 20 microns as taught by Trzaskos would have been considered obvious in order to provide a desirable attenuation as ultrasound backing member when the contributing particles are very small.

Regarding claim 4, Trzaskos teaches in col. 1 lines 35-51 that degassed polymer-metal composites can provide a desirable high attenuation as ultrasound backing members when the contributing particles are 10 microns or less.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Horner et al in view of Trzaskos (US4382201) as applied to claim 1 above, and further in view of Saito et al. (US 4571520) since the latter teaches that both rubber and polymer plastic microballoons may be used as matrix and filler for forming such a backing layer as called for in Horner.

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Horner et al as applied to claim 13 above, and further in view of Saito et al (US4571520) since the latter teaches that both rubber and polymer plastic microballoons may be used as matrix and filler for forming such a backing layer as called for in Horner et al.

Claim 12 is rejected under 35 USC U.S.C. 103(a) as being unpatentable over Horner et al in view of Trzaskos, as applied to claim 1 above, and further in view of

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McElroy et al. (US3794866) since the latter teaches in col. 6 lines 31-36 that the backing block may comprise metal fibers with (incompatible) residual air voids whereupon the block would inherently have the stiffness of the fibers. The metal fibers are merely elongated articles individually (there being no limitation as to particle shape for example) which are woven into a mat form. It is convention to refer to individual fibers as particles when separated from the matrix.

### ***Allowable Subject Matter***

Claim 2 is again objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 18-21 are allowable over the prior art.

### **(10) Response to Argument**

In response to appellant's arguments with respect to claim 1, that the Horner et al reference do not teach the use of no bonding of filler in the backing. The examiner respectfully disagrees with applicant's assertions. The Horner et al patent teach an ultrasound transducer including a backing comprising a physical mixture of lead oxide and/or microspheres in combination with silicone rubber brought into contact but unbonded (col. 1, lines 43-53; col. 3, lines 3-55), and including 1:1 mixture ratios (see table in column 3). The Horner et al transducer backing construct is described as alternative to an adhesive type backing and is described as a mixture with no form of bonding acknowledged. Since the backing fabrication is stated to be an alternative to



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adhesive materials and there is no stated indication that the mixture of particles into rubber results in any form of bonding, the disclosure effectively embraces an unbonded particle design.

In response to appellant's arguments with respect to claims 7 and 16, that the Horner et al do not specifically disclose the relative impedance between the materials being within 10 percent difference. The examiner respectfully disagrees with applicant's assertions. As shown in the table of column 3 the acoustic Impedance for the different material mixture wherein the particle filler is lead oxide (PbO) the acoustic impedance is in the range of  $1.6$  to  $2.8 \times 10^6$  Rayls; in the case wherein the particle filler is lead oxide ( $Pb_3 O_4$ ) and microspheres is in the range of  $2.1$  to  $2.3 \times 10^6$  Rayls; and in the case where the particle filler is tungsten oxide the acoustic impedance is in the range of  $2.1$  to  $3.3 \times 10^6$  Rayls, such materials are substantially within the 10 percent acoustic impedance difference and have different hardness and/or viscosity.

In response to appellant's arguments with respect to claims 11 and 13, as argued in the rejection of claim 13. Since the physical mixture of the backing materials are incompatible or (unbonded), the mix materials would inherently allow movement of particles between the unbonded matrix materials creating friction for attenuating acoustic energy.

#### **(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

This examiner's answer contains a new ground of rejection set forth in section **(9)** above. Accordingly, appellant must within **TWO MONTHS** from the date of this answer exercise one of the following two options to avoid *sua sponte* **dismissal of the appeal** as to the claims subject to the new ground of rejection:

(1) **Reopen prosecution.** Request that prosecution be reopened before the primary examiner by filing a reply under 37 CFR 1.111 with or without amendment, affidavit or other evidence. Any amendment, affidavit or other evidence must be relevant to the new grounds of rejection. A request that complies with 37 CFR 41.39(b)(1) will be entered and considered. Any request that prosecution be reopened will be treated as a request to withdraw the appeal.

(2) **Maintain appeal.** Request that the appeal be maintained by filing a reply brief as set forth in 37 CFR 41.41. Such a reply brief must address each new ground of rejection as set forth in 37 CFR 41.37(c)(1)(vii) and should be in compliance with the other requirements of 37 CFR 41.37(c). If a reply brief filed pursuant to 37 CFR 41.39(b)(2) is accompanied by any amendment, affidavit or other evidence, it shall be treated as a request that prosecution be reopened before the primary examiner under 37 CFR 41.39(b)(1).

Extensions of time under 37 CFR 1.136(a) are not applicable to the TWO MONTH time period set forth above. See 37 CFR 1.136(b) for extensions of time to reply for patent applications and 37 CFR 1.550(c) for extensions of time to reply for ex parte reexamination proceedings.

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Respectfully submitted,

/John F Ramirez/  
Examiner, Art Unit 3737

**A Technology Center Director or designee must personally approve the new ground(s) of rejection set forth in section (9) above by signing below:**

/DONALD HAJEC/

Director, Technology Center 3700

Conferees:

Brian L. Casler  
SPE Art Unit 3737

/BRIAN CASLER/  
Supervisory Patent Examiner, Art Unit 3737

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